We claim:

1. An ion exchange media comprising at least one flow path, said flow path comprising a plurality of alternating cation exchange zones and anion exchange zones, and said flow path being within a substantially nonporous resin transport framework.

2. The ion exchange media of claim 1, said cation exchange zones comprising cation resin and said anion exchange zones comprising anion resin, each of said cation exchange zones and said anion exchange zones being in contact with said transport framework.

3. The ion exchange media of claim 2, wherein said resin transport framework comprises a cation resin side and an anion resin side that meet at an interface.

4. The ion exchange media of claim 3, wherein the resin comprising the resin transport framework and the resin within the flow path may be regenerated resin, exhausted resin, or a combination of the two.

5. The ion exchange media of claim 3, wherein said flow path is defined by a void extending longitudinally along the length of the transport framework through said transport framework at the interface.

6. The ion exchange media of claim 3, wherein the average particle size of the resin comprising the resin transport framework is substantially smaller than the average particle size of the resin within the flow path.

7. The ion exchange media of claim 1, further comprising at least one of an anion membrane and a cation membrane, wherein said cation membrane surrounds and is in contact with the cation resin side and said anion membrane surrounds and is in contact with the anion membrane side.

8. The ion exchange media of claim 7, wherein said anion membrane is in continuous contact with said anion resin side, and wherein said cation membrane is in continuous contact with said cation resin side.

9. An electrodeionization apparatus comprising at least one dilute chamber, at least one concentrate chamber, and at least one electrode, wherein said dilute chamber includes the ion exchange media of claim 1.

10. The ion exchange media of claim 1, wherein said resin transport framework prevents substantially all movement of water through said resin transport framework outside the boundary of the flow path.

11. The ion exchange media of claim 1, wherein said resin transport framework is comprised of a binding agent and said flow path is comprised of a binding agent, and wherein the concentration of said binding agent in said resin transport framework is greater than the concentration of said binding agent in said flow path.

12. The ion exchange media of claim 11, wherein the respective binding agents may be the same binding agent, different binding agent, or a mixture of the same binding agent and different binding agent.

13. The ion exchange media of claim 3, wherein said resin transport framework is comprised of a first binding agent with a first porosity, wherein said flow path is comprised of a binding agent with a second porosity, and wherein said second porosity is greater than said first porosity.

14. An ion exchange media comprising a substantially nonporous resin transport framework comprised of an anion resin side and a cation resin side that meet at an interface, further comprising a plurality of flow paths extending longitudinally along the interface along the entire

length of the resin transport framework, said flow paths comprising alternating areas of cation resin and anion resin in contact with said nonporous resin transport framework.

15. A method for constructing an ion exchange media, comprising the steps of

1) providing a nonporous cation resin side, wherein said nonporous cation resin side is formed by the steps of

a) providing a nonporous cation resin,

b) drying said cation resin,

c) grinding said cation resin,

d) optionally sieving said cation resin,

e) impregnating said cation resin into a binding medium to form a cation resin mixture,

f) partially drying said cation resin mixture,

g) shaping said cation resin mixture, and

h) drying said cation resin mixture;

2) providing a nonporous anion resin side, wherein said nonporous anion resin side is formed by the steps of

a) providing a nonporous anion resin,

b) drying said anion resin,

c) grinding said anion resin,

d) optionally sieving said anion resin,

e) impregnating said anion resin into a binding medium to form an anion resin mixture,

f) partially drying said anion resin mixture,

g) shaping said anion resin mixture, and

h) drying said anion resin mixture;

3) combining said anion resin side and said cation resin side such that they meet at an interface to form a nonporous resin transport framework, said transport framework including at least one void extending longitudinally through said transport framework at the interface and along the length of the transport framework; and

4) filling said void with a plurality of alternating layers of a porous second cation resin and a porous second anion resin to form at least one flow path.

16. The method of claim 15, including before the step of filling said void the additional step of binding each of said anion resin and said cation resin into a plurality of inserts having shapes corresponding to the cross-section of said void.

17. A method for limiting water splitting to resin-resin bipolar interfaces during electrodeionization of water, comprising limiting flow of water to a flow path, said flow path comprising alternating cation resin zones and anion resin zones contained within a substantially nonporous resin transport framework comprised of an anion resin side and a cation resin side.